It is also surprising that the patient suffered no inconvenience in walking. Repeated after-examinations of this case showed that the uteri were separate from one another, and that the bladder and urethræ did not communicate. There were only two ovaries. The condition of the genital organs can be partially explained, but not that of the urinary organs. So far as is known, the allantois, from which the bladder develops, is a single organ.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

UNDER THE CHARGE OF

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Signs of Virginity in an Exhumed Body.

Grigoresco, of Ilfov (*Annales d'hygiène publique*, Sér. 3, T. xvi. 1886, pp. 225–239), gives the results of the medico-legal investigation of a case where it was important to determine if a child, aged seven years, and buried for one year, had been violated previous to death. The occasion of the investigation was the death of the child's father from poisoning by sulphide of arsenic (orpiment). His wife, who was suspected of having administered the poison, alleged, on the contrary, that he had committed suicide from remorse at having violated his young daughter a year before her death. The body of the daughter was accordingly exhumed. It was found to contain a large quantity of sulphide of arsenic, so that there was no doubt as to the child also having been poisoned. The mother had stated that her knowledge of the defloration of her daughter was obtained from the confession of the child, and, later, of her husband. She admitted, however, that, although she noticed some spots of blood on the chemise of the child, she did not examine her person; further, the child had not complained of any soreness about the genitals. The medical examination of the exhumed body showed that all the fleshy parts of the body were completely mummified. The lower part of the trunk, containing the genital organs, was macerated for seven hours in a three per cent. solution of potash, when it was transferred to pure water and kept there for two days. By this time, the soft parts were much softened, and began to assume the appearance of a freshly buried corpse. The vulvo-vaginal orifice was now easily recognizable. The parts were next digested for a day or two in a weak solution of acetic acid. All the parts had now become as soft as those of a corpse dead for twenty-four hours. The labia majora and minora were perfect. The anterior commissure of the latter was well preserved, as was also the prepuce of the clitoris. The vestibule of the vulva was preserved in all its integrity, and the urethral opening was easily made out. Below the latter was the vaginal tubercle, of the size of a lentil, and having attached two grayish membranous shreds, three mm. long and two mm. broad, which lost themselves in the circumference of the vaginal orifice. The muscular covering of the vagina and rectum was completely preserved. On the left labio-vaginal surface, toward the posterior commissure, there was a fragment of grayish membrane, half a mm. in thickness, four mm. broad, and five mm. long. It was attached along one of its borders. The free border was irregular. This membrane appeared to be a portion of the hymen, the remainder of which had been destroyed by putrefaction. The pelvis was now placed in alcohol for three days and again examined. The examination was aided by slight dissection. There was now discovered, near the membrane just described, another finer membrane, three mm. broad, of a ribbon-like form. It passed toward the vaginal tubercle, and was six to seven mm. long. One end was attached to the vulvo-vaginal surface, the other was free. It formed about the half of a crescent, whose concavity looked toward the front of the vulva, and was undoubtedly the left half of the hymen. The membranes were further hardened in alcohol, and examined microscopically. They were found to agree in structure with the hymen. From this investigation it was concluded that the child had not been deflowered a year previous to her death, otherwise there would have been no remains of a membranous hymen; and it was highly improbable that she had been deflowered shortly before death (when membranous fragments of the hymen might have remained), for the reason that defloration must have been accompanied by great injury to the vulva and by copious hemorrhage, and by complaints of great pain, of which the mother gave no evidence. The mother was convicted of a double homicide, and sentenced to penal servitude for life. Four years afterward she confessed that she was guilty of the double crime, and that she had invented the story of her daughter's violation.

CURARA.

S. Pollitzer, of New York, has, under Kühne, of Heidelberg, reinvestigated some points in the action of curara (*Journal of Physiology*, vol. vii. pp. 274–282, 1886). Many years ago Kühne found that the irritability of the sartorius muscle of a frog, poisoned with even the largest doses of curara, was never wholly uniform throughout the length of the muscle, the median portions supplied with nerves having a greater irritability than the nerveless extremities. He concluded, therefore, that curara leaves unaffected certain terminal nerve-elements in the muscle. Sachs was unable to verify Kühne's results, and attributed them to imperfect curarization of the muscle. Pollitzer has repeated Kühne's experiments with the aid of a carefully devised apparatus for applying electrical stimulation to the muscle at different points in its length. He first of all ascertained what variations in irritability exist throughout the length of the normal sartorius of a frog. He found certain variations common to all normal sartorii. These variations he attributes to differences in nerve distribution. He then investigated the effect of curara, and found that, although curara diminishes the irritability of the muscle in its whole length, yet it does not greatly affect the variations observed in the normal muscle. That is to say, certain portions of the muscle still remain more irritable than other parts.. If the nerve terminations in the muscles were perfectly and wholly paralyzed by curara, as is usually maintained, then it was to be expected that the linear variations in the irritability of the muscle would have disappeared, since these were dependent on the nervous supply, and the nervous supply was now eliminated. Reasoning in this manner, Pollitzer concludes that "curara leaves unaffected certain terminal nerve-elements in the muscle," and that "it affects some part of the nerve-fibres between the nerve stems and their ultimate ends in the muscle fibrillæ." He suggests, although he is able to offer no proof of this, that the particular part affected by the drug is the cement substance at the nodes of Ranvier, which becomes so modified that the nervous impulse can no longer pass through it. The paper is one of considerable interest.

Cacodylic Acid.

J. Marshall and W. D. Green (*Amer. Chem. Journ.*, vol. viii. 128–138, reported in *Journ. Chem. Soc.*, cclxxxv. p. 730, 1886) have reinvestigated the action of cacodylic acid. Several investigators have stated that the acid, in spite of its containing the element arsenic, has no poisonous properties. Lebahn, however, observed that rabbits died in from one to twenty-five days after injection of quantities of cacodylic acid up to 2.3 grammes. As Lebahn makes no mention of the purity of the acid he employed, it is probable that the results he obtained were due to an admixture of ordinary arsenious acid in the preparation used. Marshall and Green find that commercial cacodylic acid often contains arsenious acid. These investigators administered pure cacodylic acid to dogs in doses of one to three grammes without producing a lethal effect; salivation, vomiting, and purging were the only symptoms observed. Larger doses did not cause death unless in the case of one small dog, which died after the subcutaneous injection of three grammes. The authors believe that the general effects of cacodylic acid are similar to those of arsenious acid, but are more transitory.

The Poisonous Action of Peptones and Albuminoses.

S. Pollitzer has, in Kühne's laboratory, investigated the action of peptones and albuminoses on animals (*Journal of Physiology*, vol. vi. pp. 283–290, 1886). The albuminoses were prepared by the method of Kühne and Chittenden, and the peptones by that of Wenz. Similar experiments had formerly been made by Schmidt-Mülheim and others, but the preparations employed were impure. The results of Pollitzer's experiments are the following: All the varieties of albuminoses and peptones employed, except antipeptones, exercise a strong narcotic action on dogs and cats when introduced into the veins, hetero-albuminose being the most powerful of them. In addition to the narcosis which supervenes within two minutes—and is said to resemble that produced by chloroform, although the reflexes are perfectly preserved—there are at first signs of strong intestinal peristaltic action, accompanied by defecation, and generally also by micturition. There is no motor paralysis; but the muscles are thrown into a cataleptic condition. The author denies that the poisonous effects are due to the admixture of a ptomaine, as Brieger has asserted. Most of the substances employed have a remarkable effect in preventing or delaying the coagulation of the blood drawn from the arteries of an animal into whose circulation an injection has been made. They also have a marked effect on the blood-pressure, greatly lowering it.

This is due to the vaso-motor paralysis. The narcosis is coexistent with the lowering of the blood-pressure. The albuminoses are sharply distinguished from the peptones by the fact that a sufficiently large dose of the former (more than 0.3 grm. per kilogrm.) is inevitably fatal, whereas peptones never produce this result so long as the kidneys are intact. The peptones are rapidly excreted.

THE NATURE AND ACTION OF THE VENOM OF POISONOUS SNAKES.

R. **NORRIS WOLFENDEN** has undertaken, in the physiological laboratory of University College, London, an investigation of the nature and action of the venom of poisonous snakes, the results of the first part of which have been recently published in the *Journal of Physiology*, vol. vii. 327–364. So far he has investigated the venom of the Indian cobra (naja tripudians) and of the Indian viper (daboia russellii). As to the nature of the poison of the cobra, the author concludes, from a number of careful experiments, and after a critical examination of the investigations of previous observers, that "the toxic power of cobra venom resides in the proteid constituents of the secretion, and is lost when the proteids are removed and diminished as these are diminished." It is not of the nature of a germ, nor is it alkaloidal. Blyth's cobric acid, he believes, has no real existence. An attempt was made to separate and distinguish the proteid constituents of the venom; and globulin, serum albumen, and syntonin were obtained, with an occasional trace of peptone. The supposed action of permanganate of potash as an antidote to cobra poisoning is due merely to its usual action on the proteids, which it oxidizes and destroys. This, however, it cannot effect after the poison has been absorbed. A few experiments were made on rats, in order to observe the action of the cobra venom and of some of its constituents. The usual symptoms were observed: drowsiness, with progressive paralysis of the muscles of locomotion, followed by paralysis of the larynx and tongue, salivation and vomiting, increased secretions, slow and labored respirations, convulsions and asphyxiation, the heart continuing to beat long after apparent death. Consciousness remained to the end.

The examination of the venom of the Indian viper was not so complete, but enough was done to lead to the conclusion that its toxic properties are resident in its proteid constituents. As in the case of the cobra venom, the author was able to separate various proteids. These were similar in chemical character to those obtained from cobra venom, except that albuminose took the place of syntonin. The author believes that the investigations of Pollitzer (a summary of which will be found above), and others, of the action of ordinary peptones and albuminoses, point to the probability of the proteid constituents of the venom being likewise the poisonous constituents.

COBRIC ACID.

In 1876, Wynter Blyth published, in *The Analyst*, an account of an acid (cobric acid) which he had separated in small quantity, and in crystalline form, from the cobra venom, and which he believed to be the poisonous constituent of the venom. **WOLFENDEN** (*Journal of Physiology*, 1886, vol. vii. pp. 365–370) has repeated, apparently with great care, the process by which

Blyth obtained the acid, but with entirely negative results. He finds, however, that the crystals described and figured by Blyth bear a striking resemblance to those of sulphate of lime. For this and other reasons, he concludes that the crystals of so-called cobric acid are really sulphate of lime.

ERGOT.

It is rare that, in cases of ergot poisoning coming under the cognizance of criminal authorities, the chief symptoms take the form of gangrene. Such a case was recently reported to the Société de Médecine Légale de France, by M. POUCHET (*Annales d'hyg. publ.*, sér. 3. xvi. pp. 253–270, 1886). It was that of a young woman, a domestic servant, who, after having aborted on several occasions, died suffering from gangrene of the extremities, the gangrene having appeared about a month before death. There was strong suspicion of her death having been caused by ergot; and on investigation it was found that, while in the employment of a farmer, she had become pregnant on several occasions. On the first three of these, her master had administered to her an inodorous, bitter, grayish-white liquid, which soon caused violent colic and pain in the loins with a feeling of extreme lassitude, followed a few days afterward by menorrhagia and abortion. On the fourth and fifth occasion she stoutly refused to take the draught which was prepared for her, and her pregnancies terminated naturally in the birth of two children. On two subsequent occasions she was again pregnant, but consented to take the draught, which was several times repeated, and, as a result, she aborted. Finally, on the 6th of March, 1885, she had still another abortion, brought about as before by taking the mixture prepared by her master. A month afterward she was visited by a doctor, and found to be pale, cyanotic, and œdematous; tongue furred; breath fetid; pulse feeble and irregular; great dyspnœa with mucous non-sanguinolent expectoration; dulness and crepitations at the apex of the right lung; considerable hypertrophy of the heart, with bruit accompanying the first sound. The doctor ascribed these symptoms to the condition of the heart. Three months later, about the middle of July, and a month before her death, gangrene appeared in both hands, the right forearm, and both feet. There was now a condition of extreme cachexia. At her death (August 14th) the gangrene had advanced considerably. After the autopsy an analysis was made of several parts of the body (uterus, stomach, liver, kidneys, heart, brain, etc.) in order to ascertain whether ergot was discoverable. By means of petroleum ether a coloring matter was separated which presented a spectrum absolutely identical with that of ergot, and an extract was prepared which, M. Pouchet says, exhibited all the reactions of ergotinine. A dog poisoned with ergot, and afterward examined, yielded chemical results similar to those met with in the case of the woman. Pouchet, therefore, concluded that the woman had died o ergot poisoning, and that the ergot had been administered over a great length of time, probably several years, though intermittently, as the history of the case showed. Her master was condemned to ten years' imprisonment.

ACTION OF LIME, POTASSIUM, AND OTHER SALTS ON MUSCULAR TISSUE.

PROF. SYDNEY RINGER, of London, gives the results of further investigation of this subject (*Journal of Physiology*, 1886, vol. vii. pp. 291–908). In experiments on the heart, he states that he now employs phosphate of lime, instead of chloride of calcium, in the composition of the artificial circulating fluid. With such a fluid the contractility of the frog's heart can be preserved for several hours. It also preserves the contractility of skeletal muscles for a long time. It preserves contractility fully one and a half times as long as the usual 0.6 per cent. saline solution. The addition of bicarbonate of soda to the ordinary saline solution increases its power; but it is still less effective than phosphate of lime. The addition of chloride of potassium to the saline solution containing phosphate of lime still further increases its power of preserving muscular contractility. From such results as these, the author argues "that lime and potash salts are as necessary to the metabolism of muscle at rest as to the metabolism occurring during a muscular contraction." He also gives experiments to show that salts in part preserve contractility by preventing or lessening twitching of the muscles.

Hypochlorite and Hyposulphite of Calcium.

Prof. Poincaré, of Nancy (*Annal. d'hyg. publ.*, sér. 3, tome xvi. pp. 153–155, 1886), states, as the result of several experiments on some of the lower mammals, that the gases which escape from dry hypochlorite of calcium or from hyposulphite of calcium have no bad effects on animals. The experiments were made by keeping the animals, for more than a month, in cages containing saucerfuls of the substances. A little acid was from time to time added to the hyposulphite.

PUBLIC HEALTH.

UNDER THE CHARGE OF

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Milk Infection.

In the last number an account was given of a disease occurring in cows on a farm at Hendon, Middlesex, which was believed to have given origin to infection with scarlet fever of the drinkers of milk from these cows. The official report by **Mr. W. H. Power**, Medical Inspector of the Local Government Board of England, is now published, and the evidence which he adduces therein may be held to be sufficient to warrant the conclusion that the cow-disease caused scarlet fever in man. The farm, which consisted of three sheds—a "large," "middle," and "small" shed, beside quarantine sheds—was found to have had special pains taken to render it, as the phrase is, "sanitarily perfect," and had for several years been the subject of special supervision by the Medical Officer of Health of the district, who had also undertaken to observe and report to the London milk retailers any occurrences of infectious disease in the neighborhood of the farm. Milk from the